

- C /
- (A) carrying out an initial stage of the interesterifying reaction in a continuous manner under conditions of backmixing suitable for maintaining within said reaction mixture a level of lower partial fatty acid esters of said polyol that is sufficient to emulsify said reaction mixture; and
 - (B) carrying out at least a final stage of the interesterifying reaction in a continuous manner under conditions approaching plug-flow conditions after the degree of esterification of said polyol has reached at least about 50%.--

Please also rewrite Claims 1, 2, 5, 8, 10, 11, 13, 14, 15, 22, 23, 27, 29, 40, 43, 44, 48, 51, 56 and 58 as follows:

*Subst.
H*

1 (Twice Amended) A continuous process for preparing highly esterified polyol fatty acid polyester by interesterifying polyol containing more than about four esterifiable hydroxy groups and fatty acid ester of easily removable alcohol in a heterogeneous reaction mixture wherein

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- (a) a catalyst is used in the reaction mixture at an initial level of from about 0.01 to about 0.5 mole of catalyst per mole of polyol;
 - (b) a soap emulsifier is used in the initial stage of the process at a level of from about 0.001 to about 0.6 mole of soap per mole of polyol;
 - (c) the molar ratio of total ester reactant to each esterifiable hydroxy group of the polyol in the reaction mixture ranges from about 0.9:1 to about 1.2:1;
 - (d) the temperature in the initial stage of the process ranges from about 130°C to about 140°C, and in the final stages of the process ranges from about 80°C to about 120°C, and
 - (e) [said] easily removable alcohol is removed from the reaction mixture as the interesterifying reaction proceeds; and
- wherein [and] said process [comprises an improvement selected from the group consisting of:] utilizes one or more of the following features:

- Subst H1*
- C2*
- (1) the polyol is a particulate solid that has had its particle size reduced by mechanical size reduction to a particle size of less than about 100 microns;
 - [(2)] the process is a continuous process in which the initial catalyst level is from about 0.01 to about 0.5 mole of catalyst per mole of polyol;
 - (3) the process is a continuous process in which the initial stage of the reaction contains soap emulsifier at a level of from about 0.001 to about 0.6 mole per mole of polyol;]
 - [(4)](2)] after the degree of esterification is greater than about 60%, and the soap is insoluble in the reaction mixture, [removing] the soap is removed from the reaction mixture by filtration or centrifugation in a continuous process;
 - [(5)](3)] unreacted polyol having particle sizes above about one micron is removed, before any soap that is present becomes insoluble, in a continuous process;
 - [(6)] the molar ratio of the total ester reactant to each said esterifiable hydroxy group of said polyol in the reaction is from about 0.9:1 to about 1.2:1;
 - (7) the temperature in the initial stage of the reaction is from about 130°C to about 140°C, and in the final stages the temperature is from about 80°C to about 120°C;]
 - [(8)](4)] said easily removable alcohol is a volatile alcohol, the pressure above the reaction mixture in the final stages of the interesterifying reaction is maintained at from about 15 to about 300 mm Hg and the removal of the volatile alcohol [that results from the reaction] is assisted by increasing the mass transfer area of the reaction mixture;
 - [(9)](5)] the initial stage of the interesterifying reaction is carried out in a continuous manner under conditions of backmixing suitable for maintaining within said reaction mixture [to maintain] a level of lower partial fatty acid esters of said polyol [in an emulsifying amount] that is sufficient to emulsify said reaction mixture;

D2

[10](6) ~~at least the final stage of the interesterifying reaction is carried out in a continuous manner under conditions approaching plug-flow conditions after the degree of esterification of said polyol [is] has reached at least about 50%; and~~
(11) ~~combinations of improvements (1) through (10)].~~

Claim 2, line 1, after "Claim 1" insert --which utilizes Feature (1)--.

Claim 5, line 1, delete "which is a continuous process and".

Claim 8, line 1, after "Claim" delete "7" and insert therefor --1--.

C3

~~Claim 10 (Amended) The process of Claim 1 [wherein the process is a continuous process and] in which; the initial catalyst level is from about 0.01 to about 0.1 mole of catalyst per mole of polyol; the initial level of soap emulsifier in the first stage of the reaction is from about [0.0001 to about 0.6] 0.2 to about 0.4 mole of soap per mole of polyol; and the polyol is a solid that has had its particle size reduced by mechanical size reduction [and has] to a particle size of less than about 50 microns.~~

Claim 11, lines 2-4, delete "said level of soap emulsifier is from about 0.2 to about 0.4 mole per mole of polyol;".

Claim 13, line 1, after "Claim", delete "12" and insert therefor --10--.

Claim 14, line 1, after "Claim" delete "10" and insert therefor --62--.

Claim 14, line 1, after "said" insert --interesterifying--.

Claim 14, line 4, after "about 70%, to" insert --thereby--.

Claim 15, line 1, after "said" insert --interesterifying--.

C4

22. (Twice Amended) The process of Claim [21] 1 which utilizes Feature (4) wherein the [removable] alcohol removed from the reaction mixture is volatile, the pressure in the final stages of the reaction is maintained at from about 15 to about 300 mm Hg and the removal of the volatile alcohol [that results from the reaction] is assisted by increasing the mass transfer area of the reaction mixture.

Claim 23, line 1, after "Claim" delete "21" and insert therefor --22--.

C5

27. (Amended) The process of Claim [1] 62 wherein in the initial stage of the [reaction] reaction, the reaction mixture contains soap emulsifier at a level of from about 0.001 to about 0.6 mole per mole of polyol [and the said initial stage is carried out under conditions of backmixing to maintain a level of lower partial fatty acid esters of said polyol in an emulsifying amount].

C6

29. (Twice Amended) The process of Claim [1] 62 wherein the temperature in the initial stage of the interesterifying reaction is from about 130°C to about 140°C and in the final stages is from about 80°C to about 120°C, wherein the [removable] alcohol removed from said reaction mixture is volatile, the pressure in the final stages of the reaction is maintained at from about 15 to about 300 mm Hg and the removal of the

C6

~~volatile alcohol [that results from the reaction] is assisted by increasing the mass transfer area of the reaction mixture[; and wherein the initial stage of the reaction contains soap emulsifier at a level of from about 0.001 to about 0.6 mole per mole of polyol and the said initial stage is carried out under conditions of backmixing to maintain a level of lower partial fatty acid esters of said polyol in an emulsifying amount].~~

Claim 40, line 1, after "Claim" delete "34" and insert therefor
--62--.

Claim 40, lines 1-2, delete "the process is a continuous process and in which:".

Claim 40, line 4, after "first stage of the" insert
--interesterifying--.

Claim 43, line 2, after "ester reactant to" insert --each--.

Claim 44, line 1, after "Claim" delete "34" and insert therefor
--62--.

Claim 48, line 1, after "Claim" delete "47" and insert therefor
--27--.

Claim 48, line 2, after "carried out" delete "in a continuous manner".

Claim 48, line 2, after "conditions" delete "and" and insert a comma therefor.

Claim 48, line 3, after "polyol" delete "is" and insert therefor
--has reached--.

Claim 51, line 1, delete the first "said" and insert therefor
--the--.

Claim 51, line 2, after "reactant to" insert --each--.

Claim 51, line 2, after "group" insert --of said polyol--.

C7

~~Claim 56 (Amended) lines 1-12, after "wherein:" delete "the temperature in the initial stage of the reaction is from about 130°C to about 140°C and in the final stages is from about 80°C to about 120°C; the removable alcohol is volatile, the pressure in the final stages of the reaction is maintained at from about 15 to about 300 mm Hg and the removal of the volatile alcohol that results from the reaction is assisted by increasing the mass transfer area of the reaction mixture; the initial stage of the reaction contains soap emulsifier at a level of from about 0.001 to about 0.6 mole per mole of polyol; said initial catalyst level is from about 0.01 to about 0.1 mole per mole of polyol; the molar ratio of said total ester reactant to each said esterifiable hydroxy group of said polyol is from about 0.9:1 to about 1.2:1;".~~

Claim 58, lines 5-7, after "75%" delete "and wherein the temperature in the initial stage of the reaction is from about 130°C to about 140°C and in the final stages is from about 80°C to about 120°C".

REMARKS

Application Amendments

By this set of First Preliminary Amendments, new independent Claim 62 has been added and claim dependencies have been altered so that Claims 14-15, 27-32, 40-45, and 48-51 and 54-55 now directly or indirectly depend from this new Claim 62. Support for new Claim 62 is found in original Claims 1 and 34, and on Specification Page 23 at lines 19-21.

Also by this set of First Preliminary Amendments, Claims 7, 12, 16, 19-21, 25, 26, 33-39, 46-47 and 52-53 have been cancelled without prejudice, and Claims 1, 2, 5, 8, 10, 11, 13, 14, 15, 22, 23, 27, 29, 40,